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Surely you men of science have vast accomplishments to your credit. You have reason to be exceedingly proud of a great record of achievement; but is it not high time that you did your bit by making it plainer to the people as a whole what your accomplishments mean to them in their work-day lives, making them understand that while you have destroyed an old order of things you have created a new and better order of things. Would it not be highly beneficial to our country if some of your meetings and discussions were given over almost wholly to the task of enlightening the people as to why it is that old methods must be discarded for new methods? Will you not give your splendid talents to plain talks with the multitude, for a great crisis confronts the world. It is the crisis of changing in a night, as it were, from the age of the ox team to the age of the flying machine. Certainly no such stupendous revolution has confronted the world in all its history, and unless our people can comprehend it all, can understand it all, they will not be qualified to deal with it in their homes, in their business and, above all, at the polls where representatives are selected by them to make new laws and discard old ones.

THE FINANCING OF PUBLIC UTILITIES

By NATHANIEL T. GUERNSEY

GENERAL COUNSEL, AMERICAN TELEPHONE AND TELEGRAPH CO.,
NEW YORK CITY

A FUNDAMENTAL factor on the economic side of the management of every public utility is that provision must be made for a constant supply of new capital.

When a new plant of a public utility has been completed, it has not been completed; in fact, its construction has just commenced. It would be a most exceptional situation if such a plant were finished before it had become necessary to consider and provide for additions to it. The communities which these utilities are serving, whether the utilities are local or more than local in their character, are constantly growing. This constant growth necessitates constant additions to the plant. The utilities can not stand still. Unless they go forward, they will go backward. It is absolutely essential not only to the public welfare and convenience, but also to the success of the utility itself that it meet these constant demands promptly. A failure to do this means inadequate and insufficient service

which usually causes and, unless it be due to extraordinary and abnormal conditions, justifies public dissatisfaction, criticism and controversy, with all of the losses and embarrassments to the utility and the public which they directly and indirectly involve.

Every well-managed public utility recognizes its obligation to meet these demands as they arise and to anticipate and provide for them in advance, so far as this may reasonably be done. The definite determination of what these future demands will be in any concrete case, in the nature of things is involved in more or less uncertainty; and where this uncertainty is such as to render the investment unjustifiable it imposes a necessary limitation upon construction in advance of known requirements. As to every utility, the correct engineering point of view, because it is the correct financial and economic point of view, is always with reference to the future. If the property is a well-managed property, speaking broadly, the work that is being engineered and financed to-day is normally with reference to future requirements; the plant that is in use to-day, meeting present requirements, was engineered, financed and constructed in the past.

The magnitude of the investment in these utilities and of this persistent demand for new money is seldom appreciated. The statisticians inform us, using the figures for 1916, that the investment in the principal utilities of the United States, including steam railroads, telephones, telegraphs, street and electric railways, electric light and power plants, water transportation, express companies, the Pullman Company, manufactured and natural gas plants, water plants and pipe lines, aggregated more than thirty-two billion dollars. It is said that during the last five years, the additions to this investment have, upon the average, amounted to more than one billion dollars in each year. This figure is too low to be taken as the basis for determining the amount of money required for these purposes. It is well known that during this period, the additions to railroad plant and equipment have not been sufficient to meet the public requirements.

It is scarcely necessary to refer to the fact that these additions can not be provided out of surplus earnings. Such earnings can and should provide a part of them, but they can not be relied upon as the sole or as the principal source from which the new money is to come. It must be attracted to these investments from the body of surplus capital which is at the time seeking investment.

Another fundamental fact, so obvious that there would be no excuse for alluding to it if it were not very frequently overlooked, is that basic economic laws require that there shall be paid for this new money what it is worth in the money market.

This general market to which the public utilities and all other enterprises desiring to obtain money must go, is in the very nature of things a highly competitive market. Those who have money to invest will invest it where, all things being considered, it will bring to them the highest return. It will go to the highest bidder. Investments in public utilities, just exactly like investments in real estate, manufacturing, banking and everything else, must be attracted by a prospective profit, and this profit, taking into account hazards and other conditions, must be equal to that offered by other available investments. Otherwise, the investors, who are seeking a profit, will place their funds in the more profitable enterprises and the money will be diverted from public utilities. To secure normal, natural business conditions, the profits to be derived by the investor from the various channels of investment must be equal when the variations in hazards and other material conditions are taken into account. When this equality exists, each class of investments will normally secure its proper proportion of the general supply of money. If one class of investments is temporarily more profitable than another, money will flow into that class until, through the operation of the laws of demand and supply, it is brought into its proper relation with the others. The late Professor William G. Sumner once said that in the final analysis returns from government bonds and gold mining must be equal.

The contention that because capital invested in public utilities is devoted to a public use, it is therefore not entitled to relatively the same return as capital in private investments, the conditions, hazards and other factors affecting the investment being considered, will never be sound as long as the laws of demand and supply remain effective. The man with a thousand dollars, or five thousand or ten thousand dollars to invest will not put it into securities of public utilities, no matter what he may reasonably believe they will earn in the way of a return, if at the same time there is offered to him an opportunity to invest this money in other securities equally sound which will bring to him a greater return. This attitude on the part of the investor is not only a cold, hard fact, but it is right. There is no legitimate reason why the business of furnishing the public the service which it requires should not be upon a sound,

economic basis. The same reasons which compel public utilities to pay the market prices for what they require of labor and machinery and iron and copper and other materials, and coal and oil and other supplies, require them to pay the market prices for money. It would be as legitimate—and no more futile—to argue that the labor used by utilities should be furnished at less than the market rate because in a public service, as it is to apply this argument to capital.

Because the fundamental economic laws of supply and demand apply to money just as broadly and effectively as they do to everything else, there has not been and there never will be devised any plan or any scheme under which, speaking broadly, public utilities can be enabled to obtain the money which they require for less than it is worth. To assert that this should be done, either in the case of capital or in the case of labor, is to assert that these services, which are of such value that they have become absolutely essential factors in our social and business life, should be furnished to the public for less than cost. This would amount to a denial of their economic right to exist. From the economic point of view nothing has a right to be unless it can pay its own way.

Because this money must be obtained in a competitive market, where the investor is not limited to these investments but may do with his money what he pleases, and will and should make the disposition of it which in his judgment promises the greatest profit, in the final analysis it is the investor who determines what return will induce him to part with his money, and therefore what return the public utility must pay in order to obtain this money. It is the investor who has the money to sell. It is he who actually fixes the price which will induce him to part with it. The investor is the public, or a very considerable and influential part of it. The opinion of every investor, from the savings-bank depositor to the holder of millions, is an element in this determination; so that it is the public itself which fixes the return which will attract money to its service.

It is clear from what has been said that in considering what is a fair return upon money invested in public utilities, or in any public utility, the question must be approached from the standpoint of the requirements of new capital to provide the necessary additions to plant. Much of the discussion of this question has been predicated upon the assumption, sometimes unconscious, frequently not stated, but very frequently present and underlying the whole argument, that the investment in a

public utility, once made, is fixed, and that the question presented is what should this utility fairly and equitably earn upon this fixed investment. This is inherently wrong, because it is directly opposed to the fact that the investment in a utility is not fixed and is not completed. It is inherently wrong, because the concrete fact with which these utilities must constantly deal is the rate that must be paid for new money.

The return which will attract to these investments their proper proportion of the available money seeking investment is that return which will place them upon a parity with other enterprises, and which is therefore a fair return.

The public utilities of the United States are much regulated. Within the last few years, commission laws have been enacted until now in every state except Delaware there exists a state commission, exercising more or less jurisdiction over the utilities within its territory. The Interstate Commerce Commission has jurisdiction over interstate carriers, including the telegraph, telephone and express companies. The jurisdiction of these commissions varies, but in general it embraces the matters of rates, service, accounting and capitalization. In addition to these larger regulatory bodies, it is probably true that there is no state which has not delegated to its municipalities greater or less power to regulate public utilities.

For the purposes that I have in mind to-day, it is not necessary to hold a brief either for or against regulation. Personally, I favor it because I believe that regulation, notwithstanding the fact that it is still in the development stage and has as yet by no means worked out to perfection, will in the long run be better for the public and better for the utilities than no regulation. But regulation costs money. It involves direct expenses to the public and expenses that may be called indirect; because in the final analysis the expenses of the utilities on account of regulation must be repaid by the public as a part of the expenses of their operation. To justify itself, regulation must be worth more than it costs. It can not be a benefit to the public unless it is also a benefit to the utilities. They are so closely interdependent that what helps or hurts one similarly affects the other.

The recognition of the two fundamental propositions which have been under discussion will go far toward realizing sound regulation of financing by public utilities. That the public requirements must be met and that the public must pay for what it receives are inevitable. It is indisputable that the requirements which the public imposes upon every kind of service af-

forsaken by public utilities are constantly growing and that this growth must continue. Sound regulation must recognize this fact and must recognize the necessity for providing the additions to plant required to adequately take care of this continuous growth. These are facts which can not be affected or controlled by laws, or by decrees of courts, or by the enactment of orders by regulatory bodies, whether they be state commissions or municipalities. Any attempt at regulation which does not recognize this limitation upon the power to regulate is in this respect unsound.

I am not familiar with local conditions in Pittsburgh. I am confident, however, that out of the growth of its population, out of the enormous increase of its business due to the war, there has arisen an increased demand upon every utility serving this community, upon the telephone service, the telegraph service, the railroad service, the water service, the gas service, the electric-light service, the street railway service, the express service, and others. What I have attempted to emphasize is that this demand is due to conditions over which no commission or regulatory body can possibly exercise any control. It is something that can not be affected by any action or by any order of any constituted authority. If it has not been anticipated, if the investment necessary to take care of it has not been made—and it is not believed that it was humanly possible to foresee and to adequately provide for existing conditions—then there has resulted some impairment of the service, with some inconvenience and loss, which must continue until the abnormal conditions incident to the war will permit the necessary readjustments. What is true of Pittsburgh is true of every other community and of the country as a whole.

It is just as true that it is beyond the power of regulation to say what shall be paid for money. There is some loose talk on the part of commissions, and more on the part of those who appear before them, about what the commissions or the laws under which they are created will permit the utilities to earn. This is all based upon misapprehension. What rate of return will attract new capital to these utilities is a question of fact to be determined by the application of sound judgment to all of the material evidence, just as much as the value of a piece of real estate, or the value of the property of a telephone company, or a water company, or a gas company, is a question of fact. What the legislature, or commission, or municipality can do, and all that it can do, is to determine this question of fact. Their authority goes no further than to authorize them to ascer-

tain as accurately as they can what return will appeal to the public as sufficient to induce the investment of money in these enterprises. If this question of fact is determined correctly, new money will be forthcoming; if the conclusion is too low, it will not be forthcoming: and since the regulatory body has no power to compel the public to change its opinion, it will be necessary for the regulatory body to revise its own conclusion.

With the recognition of these two fundamental propositions by the public and by the regulatory bodies, the foundation is laid for sound regulation of public utilities from the financial standpoint. It is fortunate that they are neither difficult to understand nor inequitable in their results. Every one, no matter how limited his attainments, can readily appreciate and easily comprehend that increases in population, increases in business, and developments in the services of the utilities which broaden their usefulness, all tend to create a necessity for more plant and for more money to create this plant. Again, to reverse a homely phrase, they all understand that in this situation foresight is better than hindsight; it is obvious that foresight in the provision for these growing demands means the greatest efficiency and least interruption in the service.

To demonstrate that to induce money to flow into these enterprises they must appeal to the investor as offering him as much in the way of profit or return as is offered to him by other investments taking into account hazards and other conditions, is just as easy. All that is required is to put yourself in the place of the investor and to ask yourself which investment you would choose for your own money.

The equity in what these propositions involve is plain. They contemplate that the public shall have the service that it wants when it wants it. They contemplate that the public shall pay for this service what it is reasonably worth. The service is indispensable and is worth much more than the public can ever be required to pay for it.

Because these propositions are simple and are equitable, I believe that the public generally will accept them, just as soon as they are brought to its attention so that it understands them. Speaking broadly, I do not believe that the public generally either wishes to or believes that it could obtain these necessities for less than a fair remuneration. It knows that it can not obtain something for nothing. It is willing to pay a fair price. The essential thing is that it understand what is a fair price.